



**STATEMENT OF WORK
REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

**VASQUEZ BOULEVARD/INTERSTATE-70 SUPERFUND SITE
OMAHA & GRANT SMELTER LOCATION
(ON-FACILITY SOILS OPERABLE UNIT 2)**

AUGUST 2000

TABLE OF CONTENTS

	Introduction	x
Task 1	Project Planning	x
Task 2	Community Relations	x
Task 3	Data Acquisition/Field Investigations	x
Task 4	Sample Analysis	x
Task 5	Analytical Support and Data Validation	x
Task 6	Data Evaluation	x
Task 7	Treatability Study and Pilot Testing	x
Task 8	Remedial Investigation Report	x
Task 9	Remedial Alternatives Screening	x
Task 10	Remedial Alternatives Evaluation	x
Task 11	Feasibility Study Report	x
Task 12	Post RI/FS Support	x

TABLES

Table 1	Summary of Submittals for the Remedial Investigation/Feasibility Study Vasquez Boulevard/Interstate-70 Superfund Site, Omaha & Grant Smelter Location	x
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ATTACHMENTS

Attachment 1	Regulations and Guidance Documents	x
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Introduction

- I. Site Descriptions/Histories. The approximate location of the On-Facility Soils Operable Unit 2 is 42nd Avenue and St. Vincent Street. The former Omaha & Grant smelter facility was built on 50 to 70 acres bordering the South Platte River located south of Interstate 70 and south of the existing Denver Coliseum. The approximate property boundaries are:

Northwest - Colorado and Eastern Railroad

Northeast - Union Pacific Railroad

Southwest - 39th Avenue

Southeast - Wewatta Street (currently Brighton Boulevard)

Corporate History. The Omaha & Grant Smelter got its start from the Grant Smelter located in Leadville, Colorado. The Grant Smelter operated in Leadville from 1878 until 1882 and was owned by the Grant Smelting Company, an unincorporated company. When the Grant Smelter was destroyed by fire in 1882, the smelter was rebuilt in Denver starting on July 2, 1882.

The Grant Smelter shipped bullion to the Omaha Smelting and Refining Company. On July 5, 1883, the Grant Smelter merged with the Omaha Smelting and Refining Company to form the Omaha & Grant Smelting and Refining Company. On July 18, 1892, the corporation was renamed the Omaha & Grant Smelting Company.

In 1899, the Omaha & Grant Smelting Company joined other smelting companies to form the American Smelting and Refining Company. The American Smelting and Refining Company continued to operate the Omaha & Grant Smelter until 1902.

The American Smelting and Refining Company changed its name to ASARCO Incorporated (ASARCO) on May 15, 1975. ASARCO is currently listed as an active corporation in Colorado. The address of its principle place of business is 180 Maiden Lane, New York, New York 10038. Its registered agent is The Corporation Company, 1675 Broadway, Denver, Colorado 80202.

Operational History.

Facility Description. The Omaha & Grant Smelter facility was built on 50 acres bordering the South Platte River. The facility was in full operation by November 1882 with eight blast furnaces. In 1887, the Omaha & Grant Smelter installed additional roasters bringing the total number of roasters to 29. On January 1, 1892, the Omaha & Grant Smelter expanded adding eight new smelting and 20 new roasting and fusing furnaces. In 1892, a 352-foot tall smelter stack was built.

Process Description. The Omaha & Grant Smelter facility employed a lead smelting process to produce gold, silver, copper, and lead. A stack was used for smelting operations and had a furnace (built of firebrick) built on the bottom. An iron chamber with hollow walls sat on top of the furnace and this is where the materials to be smelted (ore, fuel, and lime) were poured. These materials were fused in the iron chamber within the stack. The melted product poured down into the firebrick basement of the stack. Lead and silver sank to the bottom and the slag floated on the surface of the liquid metals.

In 1888, the Omaha & Grant Smelter, in conjunction with the Ion Silver Mining Company of Leadville, erected a zinc processing mill. It is assumed that the mill was constructed on the Omaha & Grant Smelting and Refining Company's property, but this assumption has not been verified. The purpose of the mill was to test the possibility of reducing the zinc-bearing minerals that interfere with the smelting of silver-lead ores. The process employed roasting, chlorinating, and electrolysis to remove zinc, resulting in a residue that could be smelted. The experiment was not financially viable and was abandoned.

On December 15, 1936, the City and County of Denver (Denver) announced plans to use the Omaha & Grant Smelter stack as a municipal incinerator. Denver planned to use a gas furnace to combust the materials. On November 18, 1944, Denver again announced its intent to use the Omaha & Grant Smelter stack as a city trash incinerator. As of November 19, 1944, the Omaha & Grant Smelter stack had reportedly been in use as an incinerator for about a one-week period.

Waste and Waste Disposal Practices. Although detailed information about the wastes from the smelting operations are not well documented, it is known that blast furnace slag was produced from the smelting operations.

Ores, fuel, and flux were delivered by rail car directly to the furnace charging doors on the upper levels of the smelter. As the smelting operations proceeded, the intermediate products flowed downhill to a lower level. Smelter workers would run slag onto a dump and load bullion onto rail cars. An 1890 Sanborn Fire Insurance Map identifies a slag dump to the north of the Omaha & Grant Smelter property.

On February 25, 1950, Denver demolished the Omaha & Grant Smelter stack.

Destruction of the stack reportedly created a substantial dust cloud.

The following discussion, involving air emissions from lead smelting, is based on modern processes. It should be noted that these modern processes may or may not resemble the lead smelting processes practiced at the turn of the century.

Principal emissions from primary lead smelters are particulate matter, lead, and sulfur dioxide. Given that feed materials for lead smelting include lead concentrates that are high in impurities such as arsenic, antimony, and bismuth, it may be assumed that particulate emissions may contain some of these metal oxides. Emissions vary in amount and may be from point sources, area sources, and/or fugitive sources. Additional emissions are generated from the combustion of fuel in the smelting process.

II. Purpose

The purpose of this Statement of Work (SOW) is to set forth the requirements for conducting a Remedial Investigation/Feasibility Study (RI/FS) to select a remedy to eliminate, reduce, or control risks to human health and the environment. This SOW is designed to provide the framework for conducting the RI/FS activities at the Vasquez Boulevard/Interstate-70 (VB/I-70) Superfund Site, Omaha & Grant Smelter Location Operable Unit 2 (OU2), otherwise known as the On-Facility Soils OU2. The goal is to develop the minimum amount of data necessary to support the selection of an approach for site remediation and then to use this data to develop a well-supported Record of Decision (ROD).

III. General Requirements

- A. Respondents shall conduct the RI/FS in accordance with this SOW and all other relevant guidance used by EPA in conducting an RI/FS.
- B. A summary of the major deliverables and a suggested schedule for submittals are attached (Table 1).
- C. Respondents shall furnish all necessary and appropriate personnel, materials, and services needed for, or incidental to, performing and completing the RI/FS.
- D. A list of primary guidance and reference material is attached (Attachment 1). In all cases, Respondents shall use the most recently issued guidance.
- E. Respondents shall communicate at least weekly with the United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM), either in meetings or through conference calls.
- F. Respondents shall document all decisions that are made in meetings and

conversations with EPA. Respondents shall forward this documentation to the EPA RPM within five working days of the meeting or conversation.

- G. EPA will provide oversight of Respondents' activities throughout the RI/FS. EPA review and approval of deliverables is a tool to assist this process and to satisfy, in part, EPA's responsibility to provide effective protection of public health, welfare, and the environment. EPA will review deliverables to assess the likelihood that the RI/FS will achieve its goals and that its performance requirements have been met. Acceptance of deliverables by EPA does not relieve Respondents of responsibility for the adequacy of the deliverables.

IV. Record-Keeping Requirements

Respondents shall maintain all technical records for the RI/FS and provide EPA and its contractor with copies (two sets for EPA and one set for EPA's contractor) of the technical records. Respondents shall also provide one set of copies to the Colorado Department of Public Health and Environment (CDPHE) and one set of copies at a designated community repository.

1.0 Project Planning and Support

The purpose of this task is to determine how the RI/FS will be managed and controlled. The following activities shall be performed as part of the project planning task:

1.1 Project Planning

- 1.1.1 Attend Scoping Meeting. Before or concurrent with developing the Work Plan, Respondents shall attend a scoping meeting.
- 1.1.2 Conduct Site Visit. Respondents shall conduct a site visit with the EPA RPM during the project planning phase to assist in developing a conceptual understanding of the RI/FS requirements for the site. Information gathered during the visit shall be used to better scope the project and to help determine the extent of additional data necessary to implement the RI/FS.
- 1.1.3 Evaluate Existing Information. Respondents shall evaluate existing data and documents, including previous site investigations, Preliminary Assessment Reports, Site Inspection Reports, Hazardous Ranking System Scoring Package, and other data and documents as directed by EPA. This information shall be used to determine if any additional data are needed for RI/FS implementation.
- 1.1.4 Draft Hydrogeologic Conceptual Model.

- (1) Respondents shall prepare and submit a draft technical memorandum that describes the model and addresses the following items:
 - (a) geologic and hydrogeologic stratigraphic characterization
 - (b) hydraulic conductivities (geologic and/or hydrostratigraphic units)
 - (c) hydraulic gradient
 - (d) ground-water flow direction (vertical and horizontal)
 - (e) surface-water flow
 - (f) ground-water/surface-water interactions
 - (g) data gaps to be addressed
- (2) Respondents shall submit the draft technical memorandum to EPA, CDPHE, and the community for review.

1.1.5 Final Hydrogeologic Conceptual Model. After the draft technical memorandum has been reviewed and commented on by EPA, CDPHE, and the community, Respondents will incorporate comments and submit the final technical memorandum.

1.1.6 Develop Technical Project Goals and Objectives. Respondents shall prepare data needs and data quality objectives (DQOs) for analytical sampling to be performed during the RI/FS. The goals and objectives should be used to define the analytical methods and protocols, decontamination procedures, and EPA reporting levels (e.g., I, II, III, IV) required.

- (1) Develop Conceptual Site Model
- (2) Identify Preliminary Project Requirements
 - (a) Data Needs and DQOs
 - (b) Objectives & Potential Alternatives
 - (c) Possible Treatability Studies
 - (d) Applicable or Relevant and Appropriate Requirements (ARARs) and/or other Standards
 - (e) Other Regulatory Requirements/Restrictions
 - (f) Prepare Conceptual Exposure Pathway Analysis

1.2 RI/FS Work Plan. Respondents shall present the general approach that will be used for the RI/FS at a Work Plan scoping meeting with the EPA RPM, CDPHE, and the community.

- (1) Draft RI/FS Work Plan. Respondents shall prepare and submit a draft RI/FS Work Plan within 60 days of the effective date of the Consent Order. Two copies shall be submitted to the EPA RPM, one copy shall

be sent to EPA's contractor, one copy shall be sent to CDPHE, and a copy shall be sent the community repository. The work plan shall include a comprehensive description of the additional data collection and evaluation of activities to be performed, if any, and the plans and specifications to be prepared. A comprehensive design management schedule for completion of each major activity and submittal shall also be included. The work plan shall be developed in conjunction with the Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASP), although each plan shall be delivered under separate cover.

(a) Develop Narrative. Specifically, the work plan shall present the following:

- A statement of the problem(s) and potential problem(s) posed by the site and how the objectives of the RI/FS will address the problem(s).
- A background summary setting forth: (1) a brief description of the site including the geographic location and a description of the physiographic, hydrologic, hydrogeologic, geologic, demographic, ecological, cultural, and natural resource features of the site; (2) a brief synopsis of the history of the site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties at the site; (3) a summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the site.
- Respondents' technical and management approach to each task to be performed, including a detailed description of each task; the assumptions used; the identification of any technical uncertainties (with a proposal for the resolution of those uncertainties); the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to EPA, CDPHE, and the community. Respondents shall identify any subcontractors it plans to use to accomplish all or part of a task's objectives.
- A schedule for specific dates for the start and completion of each required activity and submission of each deliverable required by this SOW. (See Table 1 for format.) This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and

deliverable and the expected review time for EPA, CDPHE, and the community.

- (b) Respondents shall submit the draft RI/FS Work Plan to EPA, CDPHE, and the community for review.
- (2) Final RI/FS Work Plan. After the draft work plan has been reviewed and commented on by EPA, CDPHE, and the community, Respondents will incorporate comments and submit the final work plan.

1.3 Site-Specific Plans

- 1.3.1 Site Management Plan. After EPA approval of the RI/FS Work Plan, Respondents shall prepare a Site Management Plan (SMP) that provides EPA with a written understanding of how access, security, contingency procedures, management responsibilities, and sampling are to be handled.
- 1.3.2 Health and Safety Plan (HASP). Respondents shall prepare a site-specific HASP that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with [40 CFR 300.150 of the NCP and] 29 CFR 1910.120 1(1) and (1)(2). A task-specific HASP must also be prepared to address health and safety requirements for site visits.
- 1.3.3 Sampling and Analysis Plan. Respondents shall prepare a Sampling and Analysis Plan (SAP) that provides EPA with a written understanding of how sampling, handling, and analyses are to be handled. Respondents shall prepare a SAP to reflect the specific objectives of data acquisition to be conducted during RI/FS activities. The SAP will outline the data collection and Quality Assurance/Quality Control (QA/QC) requirements of sampling and analysis to be conducted by Respondents. The SAP may be composed of the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) under separate covers, or it may be a single document, containing the essential elements of both the FSP and QAPP.
- 1.3.4 Quality Assurance Project Plan. Respondents shall prepare a Quality Assurance Project Plan (QAPP) in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives

identified in the National Contingency Plan.

- 1.3.5 **Field Sampling Plan.** Respondents shall prepare a Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the laboratory and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. Respondents shall document any required changes to the FSP in a memorandum to the EPA RPM.
- 1.3.6 **Data Management Plan.** Respondents shall prepare a Data Management Plan to address requirements for project management systems including tracking, storing, and retrieving data. The plan shall also identify software to be used, minimum data requirements, data format, and backup data management. The plan shall address both data management and document control for all RI/FS activities.
- 1.3.7 **Pollution Control and Mitigation Plan.** Respondents shall prepare a Pollution Control and Mitigation Plan that outlines the process, procedures, and safeguards that will be used to ensure contaminants or pollutants are not released off-site during RI/FS implementation.
- 1.3.8 **Waste Management Plan.** Respondents shall prepare a Waste Management Plan that outlines how wastes that are encountered during the RI will be managed and disposed of. Respondents shall specify the procedures that will be followed when wastes will be transported off-site for storage, treatment, or disposal.
- 1.3.9 **Project Management**
 - (1) **Prepare Periodic Status Reports.** Respondents shall prepare Monthly Progress Reports that document performance and project progress status.
 - (2) **Meeting Participation and Routine Communications.** Respondents shall attend project meetings, provide documentation of meeting results, and shall contact the EPA RPM by telephone on a weekly basis to report project status.

2.0 Community Relations

Respondents shall provide community relations support to EPA throughout the RI/FS, and development of the Record of Decision. Respondents shall provide community relations support in accordance with *Community Relations in Superfund: A Handbook*, June 1988. Community relations shall include the following subtasks:

- 2.1 Public Hearing, Meetings, and Availability Support. Respondents shall support and assist in public hearings, meetings, and open houses. Respondents shall prepare presentation materials and provide support as needed for public meetings.
- 2.2 Technical Support. Respondents shall provide technical support for community relations. This support may include preparing technical input to news releases, briefing materials, and other community relations vehicles, and helping the EPA RPM to coordinate with local agencies.
- 2.3 Logistical and Presentation Support. Respondents may be requested to assist the EPA RPM in preparing technical briefing materials and in arranging for the logistical details for the meeting(s).
- 2.4 Public Notice Support. Respondents may be requested to assist the EPA RPM in drafting public notices, announcing public meetings, and placing the notice in a local paper of general circulation.
- 2.5 Proposed Plan Support. Respondents shall provide EPA with support and assistance during implementation of the proposed plan process.
- 2.6 Responsiveness Summary Support. Respondents shall provide EPA with support and assistance, as necessary, during preparation of the responsiveness summary.

3.0 Data Acquisition/Field Investigations

Data acquisition entails collecting environmental samples and information required to support the RI/FS. The planning for this task is accomplished in Task 1.0, Project Planning and Support, which results in the plans required to collect the field data. Data acquisition starts with EPA approval of the FSP and ends with the demobilization of field personnel and equipment from the site.

Respondents shall perform the following field activities or combination of activities for data acquisition in accordance with the EPA-approved FSP and QAPP developed under Task 1.0.

3.1 Mobilization and Demobilization

Provide the necessary personnel, equipment, and materials for mobilization and

demobilization to and from the site for the purpose of conducting the sampling program under subtask 3.1.4, Field Investigation.

3.1.1 Identify Field Support Equipment, Supplies, and Facilities

3.1.2 Mobilization. Mobilize and set up a field laboratory to facilitate rapid turnaround times for analytical results and identification of sample locations for subsequent sampling rounds.

(1) Site Preparation

- (a) Perform Demolition
- (b) Clearing and Grubbing
- (c) Perform Earthwork
 - Provide Borrow Pit
 - Construct Haul Roads
- (d) Construct Roads, Parking, Curbs, and Walks
- (e) Install Storm Drainage and Subdrainage
- (f) Install Fencing and Site Security

(2) Installation of Utilities

- (a) Install Electrical Distribution
- (b) Install Telephone and Communication System(s)
- (c) Install Water, Sewage, and Gas Distribution
- (d) Install Fuel Line Distribution

(3) Construction of Temporary Facilities

- (a) Construct Decontamination Facilities
- (b) Construct Sample and Derived Waste Storage Facility
- (c) Construct Field Offices
- (d) Construct Mobile Laboratory
- (e) Construct Other Temporary Facilities

3.1.3 Demobilization. Demobilize the field laboratory.

- (1) Removal of Temporary Facilities
- (2) Site Restoration

3.1.4 Field Investigation. Conduct environmental sampling to include the following:

3.1.4.1 Perform Site Reconnaissance. Respondents shall conduct site surveys including property, boundary, utility rights-of-way, and

topographic information. These surveys are to ensure the accuracy of existing information for the RI/FS.

(1) Ecological Resources Reconnaissance

- (a) Well Inventory
- (b) Residential Well Sampling
- (c) Land Survey
- (d) Topographic Mapping
- (e) Field Screening

3.1.4.2 Conduct Geological Investigations (Soils and Sediments)

- (1) Collect Surface Soil Samples
- (2) Collect Subsurface Soil Samples
- (3) Soil Boring and Permeability Sampling
- (4) Collect Sediments Samples
- (5) Survey Soil Gases
- (6) Test Pit(s)

3.1.4.3 Conduct Air Investigations

- (1) Sample Collection
- (2) Air Monitoring Station

3.1.4.4 Conduct Hydrogeological Investigations: Ground Water

- (1) Install Well Systems
 - (a) Accomplish Mobilization
 - (b) Develop Wells
 - (c) Conduct Downhole Geophysics
 - (d) Install Monitoring Wells
 - (e) Install Test Wells
 - (f) Install Gas Wells
- (2) Collect Samples
- (3) Collect Samples During Drilling (e.g., HydroPunch or Equivalent)
- (4) Perform Hydraulic Tests (Pump Tests)
- (5) Measure Ground-Water Elevation

3.1.4.5 Conduct Hydrogeological Investigations: Surface Water

- (1) Collect Samples
- (2) Measure Surface-Water Elevation

3.1.4.6 Conduct Waste Investigation

- (1) Collect Samples (Gas, Liquid, Solid)
- (2) Dispose of Derived Waste (Gas, Liquid, Solid)

3.1.4.7 Conduct Geophysical Investigation

- (1) Surface Geophysical Activity
- (2) Magnetometer
- (3) Electromagnetics
- (4) Ground-Penetrating Radar
- (5) Seismic Refraction
- (6) Resistivity
- (7) Site Meteorology
- (8) Cone Penetrometer Survey
- (9) Remote Sensor Survey
- (10) Radiological Investigation

3.1.4.8 Conduct Ecological Investigation

- (1) Wetland and Habitat Delineation
- (2) Wildlife Observations
- (3) Community Characterization
- (4) Identification of Endangered Species
- (5) Biota Sampling and Population Studies

3.1.4.9 Collect Contaminated Building Samples.

3.1.4.10 Dispose of Investigation-Derived Waste. Characterize and dispose of investigation-derived wastes in accordance with local, State, and Federal regulations as specified in the FSP (see the Fact Sheet, *Guide to Management of Investigation-Derived Wastes*, 9345.3-03FS (January 1992)).

4.0 Sample Analysis

Respondents shall arrange for the analysis of environmental samples collected during the previous task. The sample analysis task begins with reserving sample slots in the laboratory and the completion of the field sampling program. This task ends with Respondents validating the analytical data received from the laboratory.

Respondents shall perform the following activities or combination of activities to analyze test results:

4.1 Screening-Type Laboratory Sample Analysis

4.1.1 Analyze Air and Gas Samples (organic, inorganic, and radiochemistry)

- 4.1.2 Analyze Ground-Water Samples (organic, inorganic, and radiochemistry)
- 4.1.3 Analyze Surface-Water Samples (organic, inorganic, and radiochemistry)
- 4.1.4 Analyze Soil and Sediment Samples (organic, inorganic, and radiochemistry)
- 4.1.5 Analyze Waste (Gas) Samples (organic, inorganic, and radiochemistry)
- 4.1.6 Analyze Waste (Liquid) Samples (organic, inorganic, and radiochemistry)
- 4.1.7 Analyze Waste (Solid) Samples (organic, inorganic, and radiochemistry)
- 4.1.8 Analyze Biota Samples (organic, inorganic, and radiochemistry)
- 4.1.9 Analyze Bioassay Samples
- 4.1.10 Perform Bioaccumulation Studies

4.2 CLP-Type Laboratory Sample Analysis

- 4.2.1 Analyze Air and Gas Samples (organic, inorganic, and radiochemistry)
- 4.2.2 Analyze Ground-Water Samples (organic, inorganic, and radiochemistry)
- 4.2.3 Analyze Surface-Water Samples (organic, inorganic, and radiochemistry)
- 4.2.4 Analyze Soil and Sediment Samples (organic, inorganic, and radiochemistry)
- 4.2.5 Analyze Waste (Gas) Samples (organic, inorganic, and radiochemistry)
- 4.2.6 Analyze Waste (Liquid) Samples (organic, inorganic, and radiochemistry)
- 4.2.7 Analyze Waste (Solid) Samples (organic, inorganic, and radiochemistry)
- 4.2.8 Analyze Biota Samples (organic, inorganic, and radiochemistry)
- 4.2.9 Analyze Bioassay Samples
- 4.2.10 Perform Bioaccumulation Studies

5.0 Analytical Support and Data Validation

Respondents shall arrange for the validation of environmental samples collected during the previous task. The sample validation task begins with reserving sample slots in the CLP-type laboratory and the completion of the field sampling program. This task ends with the Respondents validating the analytical data received from the laboratory. Respondents will perform appropriate data validation to ensure that the data are accurate and defensible.

Respondents shall perform the following activities or combination of activities to validate test results:

5.1 Prepare and Ship Environmental Samples

- 5.1.1 Ground-Water Samples
- 5.1.2 Surface and Subsurface Soil Samples
- 5.1.3 Surface-Water and Sediment Samples
- 5.1.4 Air Samples
- 5.1.5 Biota Samples
- 5.1.6 Other Types of Media Sampling and Screening

- 5.2 Coordinate with Appropriate Sample Management Personnel
- 5.3 Implement EPA-Approved Laboratory QA Program
- 5.4 Provide Sample Management (Chain of Custody, Sample Retention, and Data Storage).

Ensure the proper management of samples. Ensure accurate chain-of-custody procedures for sample tracking, protective sample packing techniques, and proper sample-preservation techniques.

5.5 Validate Data

5.5.1 Review Analytical Results Against Validation Criteria

5.5.2 Provide Written Documentation of Validation Efforts

6.0 Data Evaluation

Respondents shall organize and evaluate existing data and data gathered during the previous tasks that will be used later in the RI/FS effort. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of the Data Evaluation Summary Report. Specifically, Respondents shall perform the following activities or combination of activities during the data evaluation effort:

6.1 Data Usability Evaluation and Field QA/QC

6.2 Data Reduction, Tabulation, and Evaluation.

Evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. Design and set up an appropriate database for pertinent information collected that will be used during the RI/FS.

6.2.1 Evaluate Geological Data (Soils and Sediments)

6.2.2 Evaluate Air Data

6.2.3 Evaluate Hydrogeological Data: Ground Water

6.2.4 Evaluate Hydrogeological Data: Surface Water

6.2.5 Evaluate Waste Data

6.2.6 Evaluate Geophysical Data

6.2.7 Evaluate Ecological Data

6.3 Modeling

6.3.1 Contaminant Fate and Transport

6.3.2 Water Quality

- 6.3.3 Ground Water
- 6.3.4 Air
- 6.3.5 Other Modeling

- 6.4 Data Evaluation Summary Report. Respondents shall evaluate and present results in a Data Evaluation Summary Report and submit to the EPA RPM, CDPHE, and the community for review and approval. After the EPA RPM's review, attend a meeting with EPA to discuss data evaluation results and next steps.

7.0 Treatability Study and Pilot Testing

Technologies that may be suitable to the site should be identified as early as possible to determine whether there is a need to conduct treatability studies to better estimate costs and performance capabilities. At present, it is unknown whether a bench-scale test or pilot study will be conducted. However, should a bench-scale test or pilot study be determined as necessary, Respondents shall submit a testing plan identifying the types and goals of the study. The treatability study shall determine the suitability of remedial technologies to site conditions and problems.

The three levels of treatability studies are laboratory screening, bench-scale testing, and pilot-scale testing. The laboratory screening is used to establish the validity of a technology to treat waste and is normally conducted during the FS. Bench-scale testing is used to identify the performance of the technology specific to a type of waste for an operable unit. Often bench-scale tests are conducted during the FS. Pilot-scale testing is used to provide quantitative performance, cost, and design information for remediation and is typically performed during RD (see the Fact Sheet, *Guide for Conducting Treatability Studies Under CERCLA*, November, 1993).

In accordance with the management schedule established in the approved RI/FS Work Plan, Respondents shall perform the following activities:

7.1 Literature Search

7.2 Treatability Study Work Plan.

Respondents shall prepare the draft Treatability Study Work plan and submit to the EPA RPM, CDPHE, and the community for review and approval. The Treatability Study Work Plan shall describe the technology to be tested, test objectives, test equipment or systems, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety procedures, and residual waste management. The DQOs for the treatability study shall also be documented.

The Treatability Study Work Plan shall also describe pilot plant installation and

startup, pilot plant operation and maintenance procedures, and operating conditions to be tested.

If testing is to be performed off-site, permitting requirements shall be addressed. A schedule for performing the treatability study shall be included with specific dates for each task and subtask, including EPA review periods. Key milestones that should have completion dates specified include, but are not limited to, the procurement of contractors and the completion of sample collection, the performance period, sample analysis, and report preparation.

The Treatability Study Work Plan shall describe in detail the treatment process and how the proposed vendor or technology will meet the performance standards for the site. The Treatability Study Work Plan shall address how Respondents will meet all discharge or disposal requirements for any and all treated material, air, water, and expected effluents. Additionally, the work plan shall explain the proposed final treatment and disposal of all material generated by the proposed treatment system.

Respondents shall conduct the treatability studies, as necessary, to determine whether the remediation technology or vendor of the technology can achieve the performance standards. Treatability studies shall be conducted as described in the EPA-approved Final Treatability Study Work Plan.

The following activities may be required during the performance of the treatability study and pilot testing:

7.3 Bench-Scale Testing

7.3.1 Procure Test Facility and Equipment. Respondents shall procure test facility and equipment, including the procurement procedures necessary to acquire the vendor, equipment, or facility to execute the tests.

7.3.2 Provide Vendor and Analytical Services

7.3.3 Test and Operate Equipment. Respondents shall test equipment to ensure operation, then start up and operate equipment.

7.3.4 Retrieve Sample(s) for Testing. Respondents shall obtain samples for testing as specified in the Treatability Work Plan.

7.3.5 Perform Laboratory Analysis. Respondents shall establish a field laboratory to facilitate fast-turnaround analysis of test samples, or, if necessary, shall procure outside laboratory services to analyze the test samples and evaluate test results.

7.3.6 Characterize and Dispose of Residuals

7.4 Pilot-Scale Testing

7.4.1 Procure Test Facility and Equipment. Respondents shall procure test facility and equipment, including the procurement procedures necessary to acquire the vendor, equipment, or facility to execute the tests.

7.4.2 Provide Vendor and Analytical Services

7.4.3 Test and Operate Equipment. Respondents shall test equipment to ensure operation, then start up and operate equipment.

7.4.4 Retrieve Sample(s) for Testing. Respondents shall obtain samples for testing as specified in the Treatability Work Plan.

7.4.5 Perform Laboratory Analysis. Respondents shall establish a field laboratory to facilitate fast-turnaround analysis of test samples, or, if necessary, shall procure outside laboratory services to analyze the test samples and evaluate test results.

7.4.6 Characterize and Dispose of Residuals

7.5 Field-Scale Testing

7.5.1 Procure Test Facility and Equipment. Respondents shall procure test facility and equipment, including the procurement procedures necessary to acquire the vendor, equipment, or facility to execute the tests.

7.5.2 Provide Vendor and Analytical Services

7.5.3 Test and Operate Equipment. Respondents shall test equipment to ensure operation, then start up and operate equipment.

7.5.4 Retrieve Sample(s) for Testing. Respondents shall obtain samples for testing as specified in the Treatability Work Plan.

7.5.5 Perform Laboratory Analysis. Respondents shall establish a field laboratory to facilitate fast-turnaround analysis of test samples, or, if necessary, shall procure outside laboratory services to analyze the test samples and evaluate test results.

7.5.6 Characterize and Dispose of Residuals

7.6 Treatability Study Evaluation Report.

After completion of the Treatability Study, and in accordance with the schedule set forth in Table 1, Respondents shall prepare and submit a draft Treatability Study Evaluation Report that describes the performance of the technology. The study results shall clearly indicate the performance of the technology or vendor compared with the performance standards established for the site. The report shall also evaluate the treatment technology's effectiveness, implementability, cost, and final results compared with the predicted results. The report shall also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation. After EPA, CDPHE, and community review of the draft Treatability Study Evaluation Report, Respondents will incorporate comments and submit the final report.

8.0 Remedial Investigation Report

Respondents shall develop and deliver a Remedial Investigation (RI) report that accurately establishes the site characteristics such as media contaminated, extent of contamination, and the physical boundaries of the contamination. Pursuant to this objective, Respondents shall obtain only the minimally essential amount of detailed data necessary to determine the key(s) contaminant(s) movement and extent of contamination. The key contaminant(s) must be selected based on persistence and mobility in the environment and the degree of hazard. The key contaminant(s) identified in the RI shall be evaluated for receptor exposure and an estimate of the key contaminant(s) level reaching human or environmental receptors must be made. Respondents shall use existing standards and guidelines such as drinking-water standards, water-quality criteria, and other criteria accepted by the EPA as appropriate for the situation to evaluate effects on human receptors who may be exposed to the key contaminant(s) above appropriate standards or guidelines.

8.1 Draft RI Report. In accordance with the schedule developed in the RI/FS work plan, Respondents shall submit a draft RI Report which includes the following.

8.1.1 Site Background. Respondents shall assemble and review available facts about the regional conditions and conditions specific to the site under investigation.

8.1.2 Investigation.

- (1) Field Investigation & Technical Approach
- (2) Chemical Analysis & Analytical Methods
- (3) Field Methodologies
 - Biological

- Surface Water
- Sediment
- Soil Boring
- Soil Sampling
- Monitoring Well Installation
- Ground-water Sampling
- Hydrogeological Assessment
- Air Sampling

8.1.3 Site Characteristics.

- (1) Geology
- (2) Hydrogeology
- (3) Meteorology
- (4) Demographics and Land Use
- (5) Ecological Assessment

8.1.4 Nature and Extent of Contamination

- (1) Contaminant Sources
- (2) Contaminant Distribution and Trends

8.1.5 Fate and Transport

- (1) Contaminant Characteristics
- (2) Transport Processes
- (3) Contaminant Migration Trends

8.1.6 Summary and Conclusions

8.2 Final RI Report. After EPA, CDPHE, and community review of the draft RI Report, Respondents will incorporate comments and submit the final RI Report.

9.0 Remedial Alternatives Screening

Respondents shall investigate only those hazardous waste management alternatives that will remediate or control contaminated media (soil, surface water, ground water, sediments) remaining at the site, as deemed necessary in the RI, to provide adequate protection of human health and the environment. The potential alternatives should encompass, as appropriate, a range of alternatives in which treatment is used to reduce the toxicity, mobility, or volume of wastes but vary in the degree to which long-term management of residuals or untreated waste is required, one or more alternatives involving containment with little or no treatment; and a no-action alternative. Alternatives that involve minimal efforts to reduce potential exposures (e.g., site fencing, deed restrictions) should be presented as "limited action"

alternatives.

9.1 Draft Remedial Alternatives Technical Memorandum. Respondents shall prepare a draft memorandum presenting the potential alternatives, including the following information:

9.1.1 Remedial Action Objectives. Based on existing information, Respondents shall identify site-specific remedial action objectives which should be developed to protect human health and the environment. The objectives should specify the contaminant(s) and media of concern, the exposure route(s) and receptor(s), and an acceptable contaminant level or range of levels for each exposure route (i.e., preliminary remediation goals).

9.1.2 General Response Actions. Respondents will develop general response actions for each medium of interest by defining contaminant, treatment, excavation, pumping, or other actions, singly or in combination to satisfy remedial action objectives. The response actions should take into account requirements for protectiveness as identified in the remedial action objectives and the chemical and physical characteristics of the site.

9.1.3 Applicable Remedial Technologies. Respondents shall identify and screen technologies based on the developed general response actions. Hazardous waste treatment technologies should be identified and screened to ensure that only those technologies applicable to the contaminants present, their physical matrix, and other site characteristics will be considered. This screening will be based primarily on a technology's ability to effectively address the contaminants at the site, but will also take into account a technology's implementability and cost. Respondents will select representative process options, as appropriate, to carry forward into alternative development. Respondents will identify the need for treatability testing for those technologies that are probable candidates for consideration during the detailed analysis.

9.1.4 Develop Remedial Alternatives in accordance with NCP.

9.1.5 Screen Remedial Alternatives for Effectiveness, Implementability, and Cost. Respondents shall screen alternatives to identify the potential technologies or process options that will be combined into media-specific or sitewide alternatives. The developed alternatives shall be defined with respect to size and configuration of the representative process options; time for remediation; rates of flow or treatment; spatial requirements; distances for disposal; and required permits, imposed limitations, and other factors necessary to evaluate the alternatives. If many distinct, viable options are available and developed, Respondents will screen the alternatives that undergo the detailed analysis to provide the most

promising process options. The alternatives should be screened on a general basis with respect to their effectiveness, implementability, and cost.

- 9.2 Final Remedial Alternatives Technical Memorandum. After EPA, CDPHE, and community review of the draft memorandum, Respondents will incorporate comments and submit the final memorandum.

10.0 Remedial Alternatives Evaluation

Respondents will conduct a detailed evaluation of alternatives.

- 10.1 Remedial Alternatives Evaluation. The evaluation shall include: (1) a technical description of each alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion that profiles the performance of that alternative with respect to each of the evaluation criteria. The Respondents shall provide a table summarizing the results of this analysis. Once the individual analysis is complete, the alternatives will be compared and contrasted to one another with respect to each of the evaluation criteria.

11.0 Feasibility Study Report

Respondents shall develop a Feasibility (FS) Report consisting of a detailed analysis of alternatives and cost-effectiveness analysis in accordance with NCP 300.68(h)(3)(i)(2). The report shall contain 1) a summary of alternative remedial actions in accordance with Chapter 3, NCP 300.68(h)(3)(i)(2)(A); 2) Cost Analysis in accordance with Chapter 7, NCP 300.68(h)(3)(i)(2)(B); 3) Institutional analysis in accordance with Chapter 4, NCP 300.68(h)(3)(i)(2)(C); 4) Public-health analysis in accordance with Chapter 5, NCP 300.68(h)(3)(i)(2)(D); 5) Environmental analysis in accordance with Chapter 6, NCP 300.68(h)(3)(i)(2)(E).

- 11.1 Draft FS Report. Respondents shall prepare a draft FS and submit the report to EPA, CDPHE, and the community according to the schedule in the RI/FS work plan. The FS Report should contain the following:

- 11.1.1 Summary of Feasibility Study Objectives
- 11.1.2 Summary of Remedial Objectives
- 11.1.3 Articulation of General Response Action(s)
- 11.1.4 Identification & Screening of Remedial Technologies
- 11.1.5 Description of Remedial Alternatives

11.1.6 Detailed Analysis of Remedial Alternatives. Respondents' technical feasibility considerations shall include the careful study of any problems that may prevent a remedial alternative from mitigating site problems. Therefore, the site characteristics from the RI must be kept in mind as technical feasibility of the alternative is studied. Specific items to be addressed are reliability (operation over time), safety, operation and maintenance, ease with which the alternative can be implemented, and time needed for implementation.

11.1.7 Summary and Conclusions

11.2 Final FS Report. After EPA, CDPHE, and community review of the draft FS Report, Respondents will incorporate comments and submit the final FS Report.

12.0 Post RI/FS Support

This task consists of support required for preparation of the ROD for the site. Respondents shall perform the following support activities:

12.1 Attend Public Meetings, Briefings, & Technical Meetings, as appropriate.

12.2 Prepare Presentation Materials, as required

12.3 Provide Technical Assistance - Responsiveness Summary

12.4 Provide Technical Assistance - Proposed Plan & ROD

12.5 Prepare Feasibility Study Addendum, as required

**Table 1. Summary of Submittals for the Remedial Investigation/Feasibility Study
Vasquez Boulevard/Interstate-70 Superfund Site, Omaha & Grant Smelter Location**

TASK	DELIVERABLE	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
1.1.2	Site Visit Report	4	7 days after site visit	14 days after receipt of report
1.1.4	Draft Hydrogeologic Conceptual Model Technical Memorandum	4	within 60 days of the effective date of the Consent Order	25 total days after receipt of technical memorandum
1.1.5	Final Hydrogeologic Conceptual Model Technical Memorandum	4	30 days after receipt of EPA comments	4 total days after receipt of the final memorandum
1.2	Draft RI/FS Work Plan	4	within 60 days of the effective date of the Consent Order	25 total days after receipt of work plan
1.2	Final RI/FS Work Plan	4	30 days after receipt of EPA comments	4 days after receipt of the final work plan
1.3.1	Draft Site Management Plan (SMP)	4	within 60 days of the effective date of the Consent Order	25 total days after receipt of SMP
1.3.1	Final SMP	4	30 days after receipt of EPA comments	4 days total after receipt of the final SMP
1.3.2	Draft Health and Safety Plan (HASP)	4	within 60 days of the effective date of the Consent Order	7 days after receipt of HASP
1.3.2	Final HASP	4	10 days after receipt of EPA comments	1 day total after receipt of the final HASP
1.3.3	Draft Sampling and Analysis Plan (SAP)	4	within 60 days of the effective date of the Consent Order	25 total days after receipt of SAP
1.3.3	Final SAP	4	30 days after receipt of EPA comments	4 days total after receipt of the final SAP

**Table 1. Summary of Submittals for the Remedial Investigation/Feasibility Study
Vasquez Boulevard/Interstate-70 Superfund Site, Omaha & Grant Smelter Location**

TASK	DELIVERABLE	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
1.3.4	Draft Quality Assurance Project Plan (QAPP)	4	within 60 days of the effective date of the Consent Order	25 days total after receipt of QAPP
1.3.4	Final QAPP	4	30 days after receipt of EPA comments	4 days total after receipt of the final QAPP
1.3.5	Draft Field Sampling Plan (FSP)	4	within 60 days of the effective date of the Consent Order	25 days total after receipt of FSP
1.3.5	Final FSP	4	30 days after receipt of EPA comments	4 days total after receipt of the final FSP
1.3.6	Data Management Plan	4	within 60 days of the effective date of the Consent Order	14 days after receipt of plan
1.3.7	Pollution Control and Mitigation Plan	4	within 60 days of the effective date of the Consent Order	14 days after receipt of plan
1.3.8	Waste Management Plan	4	within 60 days of the effective date of the Consent Order	14 days after receipt of plan
6.4	Data Evaluation Summary Report	4	75 days after receipt of analytical results from laboratory	25 days after receipt of report
7.2	Draft Treatability Study Work Plan	4	90 days after EPA determines that treatability studies are required	25 days total after receipt of plan
7.2	Final Treatability Study Work Plan	4	30 days after receipt of EPA comments	4 days total after receipt of the final work plan
7.6	Draft Treatability Study Evaluation Report	4	60 days after completion of treatability study(ies)	25 days total after receipt of report
7.6	Final Treatability Study Evaluation Report	4	30 days after receipt of EPA comments	4 days total after receipt of the final report

**Table 1. Summary of Submittals for the Remedial Investigation/Feasibility Study
Vasquez Boulevard/Interstate-70 Superfund Site, Omaha & Grant Smelter Location**

TASK	DELIVERABLE	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
8.1	Draft Remedial Investigation (RI) Report	4	(#) days after approval of the RI/FS Work Plan	51 days total after receipt of report
8.2	Final RI Report	4	80 days after receipt of EPA comments	25 days total after receipt of the final report
9.1	Draft Remedial Alternatives Technical Memorandum	4	30 days after receipt of the baseline risk assessment	25 days total after receipt of memorandum
9.2	Final Remedial Alternatives Technical Memorandum	4	30 days after receipt of EPA comments	4 days total after receipt of the final memorandum
10.1	Remedial Alternatives Evaluation	4	within 90 days of submittal of Remedial Alternatives Technical Memorandum	25 days total after receipt of evaluation
11.1	Draft Feasibility Study Report	4	within 30 days of EPA approval of the Remedial Alternatives Evaluation	51 days total after receipt of report
11.2	Final Feasibility Study Report	4	80 days after receipt of EPA comments	25 days total after receipt of the report

Attachment 1

Regulations and Guidance Documents

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
3. Community Relations in Superfund — A Handbook, U.S. EPA, Office of Emergency and Remedial Response, January 1992, Directive No. 9230.0-3C, EPA/540/R-92/009, PB92-963341.
4. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
5. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
6. EPA QA/G-4 Guidance for the Data Quality Objectives Process, Final Version, EPA/600/R-96/055, September 1994.
7. EPA QA/G-4HW Data Quality Objectives Process for Hazardous Waste Site Investigations, Final Version, EPA/600/R-00/007, January 2000.
8. EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, U.S. EPA, Quality Assurance Division, QA/R5, October 1998.
9. EPA QA/G-5 Guidance on Quality Assurance Project Plans, Final Version, EPA/600/R-98/018, February 1998.
10. *Final Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies*, Volume 1, July 1, 1991, OSWER Directive No. 9835.1(c), U.S. Environmental Protection Agency, Office of Waste Programs Enforcement.
11. *Final Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies*, Volume 2, Appendices, July 1, 1991, OSWER Directive No. 9835.1(d), U.S. Environmental Protection Agency, Office of Waste Programs Enforcement.
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
14. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
15. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
16. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.

17. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
18. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
19. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
20. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
21. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.
22. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
23. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.
24. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
25. Remedial Design and Remedial Action Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1995, OSWER Directive No. 9355.5-22.
26. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A), Interim Final, U.S. EPA, Office of Emergency and Remedial Response (OERR), EPA/540/1-89/002, December 1989.
27. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), Interim, U.S. EPA, OERR, Office of Solid Waste and Emergency Response (OSWER) Directive 9285.7-01B, December 1991.
28. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part C, Risk Evaluation of Remedial Alternatives and Actions), Review Draft, U.S. EPA, OERR, EPA/540/1-89/002C, OSWER Directive 9285.7-01C, December 1991.
29. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments), Interim, U.S. EPA, OERR, OSWER Directive 9285.7-01D, January 1998.
30. Risk Assessment Guidance for Superfund, Volume II, Environmental Evaluation Manual, Interim Final, U.S. EPA, OERR, EPA/540/1-89/001, March 1989.
31. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
32. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
33. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.

34. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
35. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
36. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
37. U.S. EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
38. U.S. EPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
39. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
40. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.
41. Website for quality assurance guidances and requirements documents:
<http://www.epa.gov/r10earth/offices/oea/qaindex.htm#National>.